

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A digital receive-focusing apparatus for use in an ultrasound imaging system comprising:

a plurality of channel modules responsive to ultrasound channel signals, ~~for producing~~
and configured to produce a receive-focused beam, each of said plurality of channel modules
~~comprising: including,~~

i) means for multiplexing ultrasound signals originating from at least two
ultrasound channels; and

ii) means for digitally processing and compensating said multiplexed
ultrasound signal.

2. (Original) The digital receive-focusing apparatus of claim 1, wherein said means
for multiplexing includes an analogue multiplexer.

3. (Currently Amended) The digital receive-focusing apparatus of claim 1, wherein
said means for digitally processing includes an analogue-to-digital converter ~~for converting~~
configured to convert said multiplexed ultrasound signal into a digital signal and a
compensator ~~for compensating~~ configured to compensate said digital signal by filtering and
time-delaying said digital signal.

4. (Original) The digital receive-focusing apparatus of claim 1, wherein said plurality
of channel modules are embodied as an Application Specific Integrated Circuit.

5. (Original) The digital receive-focusing apparatus of claim 1, wherein said plurality
of channel modules are arranged in parallel so that said digital receive-focusing apparatus can
operate in a multi-channel multi-beam mode.

6. (New) A digital receive-focusing apparatus for use in an ultrasound imaging
system comprising:

a plurality of channel modules responsive to ultrasound channel signals, and configured to produce a receive-focused beam, each of said plurality of channel modules including,

an analogue multiplexer configured to multiplex ultrasound signals originating from at least two ultrasound channels;

an analogue-to-digital converter configured to convert said multiplexed ultrasound signals into digital signals;

a first delay configured to receive said digital signals and to output the digital signals at a different time based on different amounts of delay pre-calculated based on a switching rate at the analogue multiplexer;

a compensator configured to compensate said digital signal by filtering and time-delaying said digital signal;

a second delay configured to coarsely delay said compensated digital signals;

a multiplier configured to multiply said delayed digital signals by apodization coefficients provided by an apodization generator; and

an adder configured to add said multiplied digital data.